

Brief Description of the Several Views of the Drawing.

A water treatment process takes place in a Tank 1. as it is presented by a Pic.1. A main part of said Tank 1 has a shape of a cylinder and a top part of said Tank 1 has a form of a cone. Water 7 fills almost all of a volume of said Tank 1. Some small Volume 6 within the conical part of said Tank 1 is occupied by a gas. A Propeller 3 mounted against a wall of said Tank 1 agitates said water and mixes it.

Gas bubbles within said water originate from gas molecules present in said water. The agitation of said water by said Propeller 3 causes turbulences within said water followed by a formation of gas bubbles. Contaminants within said water attach to said gas bubbles and said gas bubbles collect and deliver said contaminants to a water Top 8. Because no flocculants were added to said water said gas bubbles grow in size during rise to said water Top 8. In another preferred embodiment also presented by the Pic.1 said gas bubbles originate from gas previously dissolved in said water under pressure. Said gas is delivered by a Pipe 2. Said Pipe 2 has a form of a spiral with numerous small holes and said gas moves through said holes into said water and rises through said water.

Said gas bubbles decay on said water Top 8 and release delivered contaminants. As a result with time a top water layer will be enriched with said contaminants. When the treatment process is finished, a predetermined top volume of said water is drained through a separate drainage Valve 5. Said drainage Valve 5 is mounted against the wall close a top of the conical part of said Tank 1.

2A → A Schematics of continuous treatment process is presented by a Pic.2. An Arrow shows the direction of the water movement there. A Fig. X is a view from the top while a Fig. Y presents a side view of the process. Water initially flows fast by some shallow Channel 1. Obstacles 8 located at a bottom of said Channel 1 cause turbulences within said water. Next said water flows by a Pond 2. Said turbulences cause formation of gas bubbles within a Zone 3 of said Pond 2. Contaminants are attached to said gas bubbles and lifted to a water Top 9.

A Separator 4 is placed close to said water Top 9 within a next zone of said Pond 2. Said Separator 4 separates a thin top water layer with delivered contaminants from a main water body. Said main water body flows further by a Channel 7 while a vertical Bar 5 diverts said thin top water layer into a Pipe 6 for further treatment.

A preferred embodiment of said Separator 4 is presented by a Pic.3. Said Separator 4 is constructed in a form of plain thick lateral sheet. This sheet is constructed from Cells 7 in a form of lattice or honeycomb wherein said cells are opened from both ends and thus said gas bubbles can rise through said Separator 4. A height and width of said individual Cell 7 in said lattice or honeycomb is sufficient enough to prevent a turbulent movement of water through it. For said Separator 4 to be rigid enough Walls 6 of said Cells 7 have to be manufactured from an appropriate material, for example, but not limited to it, from steel or other metal.

In another preferred embodiment also presented by the Pic.1 said gas bubbles originate from gas previously dissolved in said water under pressure. Said gas is delivered by a Pipe 2. Said Pipe 2 has a form of a spiral with numerous small holes and said gas moves through said holes into said water and rises through said water. A pressure operated Valve 4 releases an excessive gas from said Volume 6 on the top of said Tank 1. Said gas bubbles are formed within said water after the Valve 4 is opened and the pressure within said water decreases.

In another preferred embodiment said gas bubbles are formed within said water and result both from said pressure decrease and said turbulences caused by said agitation by said Propeller 3.

In another preferred embodiment a Separator is mounted close to said water Top 8 within said Tank 1. Said Separator is a Diaphragm 9, in a construction similar to those in a photo-camera. The purpose of said Separator is to provide further separation of the water layers. During an agitation of said treated water by said Propeller 3 said Diaphragm 9 is opened, but when the treatment process is finished said Diaphragm 9 is closed, separating the enriched with the contaminants top water layer from a main body of said treated water. This separated top portion of said treated water could be treated later by any conventional method while said main water body would be much cleaner afterwards.

In another preferred embodiment of the claimed process both an upper part of said conical part of said Tank 1 is narrow enough and there is enough contaminating agents within said Tank 1 for a process of contaminants concentration on said water Top 8 to result in aggregation of said contaminants within said top water layer. Said aggregation is further followed by large enough flocks formation and eventual precipitation of said flocks into a bulk of said water. Later said water could be treated from said precipitate for example but not limited by this example by filtration.

2.A A Schematics of a preferred embodiment of a continuous treatment process by the described method is presented by the Pic.2 An Arrow shows a direction of the water movement. A Fig. X is a view from the top while a Fig. Y presents a side view of the process. 2B Water initially flows fast by a rocky ramp within some shallow Channel 1. Obstacles 8 located at a bottom of said Channel 1 cause turbulences within said water. Next said water flows by a Pond 2. Said Pond 2 is deep and said water flows comparatively slow through said Pond 2, means comparatively to said water velocity within said Channel 1.

Although said turbulences are caused by said Obstacles 8 located within said Channel 1, because said water moves fast, said turbulences cause formation of gas bubbles only when said water already flows within said Pond 2. Contaminants are attached to said gas bubbles and lifted to a water Top 9 within first part of said Pond 3, or a Zone 3 of gas bubbles formation and rise. As a result a top water layer within said Zone 3 is enriched with delivered by said gas bubbles pollutants.